

### REMARKS

In the above-mentioned Office Action, claim 21 was allowed. Objection was made to claim 15 for being dependent upon a rejected parent claim, but the Examiner acknowledged claim 15 to recite allowable subject matter. Claims 1-8 and 16-20 were rejected under Section 103(a) over the combination of *Zimmermann* and *Kumar* and claims 9-10 were rejected under Section 103(a) over the combination of *Zimmermann*, *Kumar* and *Heath*. Additionally, claims 13-15 were rejected under Section 103(a) over the combination of *Zimmermann*, *Kumar* and *Ling*.

In response to the rejections set forth in the Office Action, the dependencies of dependent claims 2-10 and 16 have been changed, as set forth herein, now to be dependent upon allowed claim 21. Method claim 17 has been amended to recite a method analogous to the apparatus recited in claim 21. And, claim 1 has been further amended. Dependent claims 12-15 remain dependent upon claim 1.

Because dependent claims 2-10 include all of the limitations of allowed claim 1, these claims are believed to be in condition for allowance. And, because method claim 17 has been amended to recite a method analogous to the apparatus recited in allowed claim 21, this claim is also believed to be in condition for allowance. Dependent claims 18-20, which include all of the limitations of claim 17, are also believed to be in condition for allowance.

The rejection of claim 1 is respectfully traversed, in light of the amendments made to the claim.

In particular, the recitation of the first modulator has been amended now to recite that the first-modulated signal formed thereat forms an antipodal signal. And, the recitation of the second modulator has been amended, now to recite that the substantially orthogonal bases of the set correspond in dimension to the available dimension values of the plurality from amongst which the mapper selects the selected dimension value into which the first antipodal signal formed of the first-modulated signal to be mapped.

The Examiner relied upon *Zimmermann* for showing a first modulator and a mapper, specifically, elements 20 and 40, respectively. Review of *Zimmermann*, however, indicates that the mapper 40 is part of the disclosed modulator. And, if the Examiner relies upon the symbol mapper 40 to form the mapper recited in claim 1, then the modulator 20 of *Zimmermann* is

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formed only of a channel encoder. Using this rationale, the channel and coder must generate the antipodal signal, but, an encoder does not appear to be the type of device that would inherently form an antipodal signal, as now recited. Additionally, the set of substantially orthogonal bases contained at the second modulator is recited to correspond in dimension to the available dimension values of the plurality amongst which the mapper selects the selected dimension value. There is no disclosure either in *Zimmermann* or in any of the references cited against the claims of such structure.

For each of these reasons, therefore, claim 1, as now amended, is believed to be distinguishable over the cited combinations of references. The dependent claims that remain dependent upon claim 1 include all of the limitations of their respective parent claim. And, these claims are, therefore, also believed to be distinguishable over the cited combinations of references for the same reasons as those given for their respective parent claims.

In light of the foregoing, reexamination and reconsideration of claims 1-10 and 12-20 is respectfully requested. Such early action is earnestly solicited.

Respectfully submitted,

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